UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/582,874	07/06/2000	TOSHIHIDE HAMAGUCHI	000831	3201

23850 7590 02/14/2006

ARMSTRONG, KRATZ, QUINTOS, HANSON & BROOKS, LLP
1725 K STREET, NW
SUITE 1000
WASHINGTON, DC 20006

EXAMINER	
AU, SCOTT D	

ART UNIT	PAPER NUMBER
2635	

DATE MAILED: 02/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

UNITED STATES PATENT AND TRADEMARK OFFICE

Commissioner for Patents
United States Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450
www.uspto.gov

BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

MAILED
FEB 14 2006
GROUP 2600

Application Number: 09/582,874
Filing Date: July 06, 2000
Appellant(s): HAMAGUCHI ET AL.

William L. Brooks
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 12/13/2005 appealing from the Office action mailed 7/8/2005.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

No amendment after final has been filed.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

5,828,295	**Mittel, Gregory James**	**10-1998**
4,727,331	**Hegeler, Wilhelm**	**02-1988**
3,623,064	**Kagan, Sholly**	**11-1971**
6,208,237	**Saiki, Shuji**	**03-2001**

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-3 and 10-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mittel et al. (US# 5,828,295) in view of Hegeler (US# 4,727,331).

Referring to claim 1, Mittel et al. disclose a notifying device (100) (i.e. a mode tracking transducer driver) comprising a vibrator (102) (i.e. electromagnetic transducer to generate a tactile alert) to be resonated by a drive signal fed thereto, and a signal preparing circuit (106) (i.e. a transducer driver) for feeding the drive signal to the

vibrator (102) (i.e. electromagnetic transducer to generate a tactile alert) at the time of a notifying operation, wherein a frequency which of the drive signal varies in range including a resonance frequency of the vibrator (col. 3 lines 9-34; see Figure 1).

However, Mittel et al. did not explicitly disclose the frequency of the vibrator in the form of sawtooth waves, the sawtooth waves comprising a portion included with respect to a time based and portion perpendicular to the time base.

In the same field of endeavor of alerting system, Hegeler discloses the frequency of the vibrator (i.e. mobile receiver) in the form of sawtooth waves (col. 2 line 46 to col. 3 line 11), and it is obvious that the sawtooth waves comprising a portion included with respect to a time based and portion perpendicular to the time base.

One of ordinary skill in the art understands that the frequency of the mobile receiver in the form of sawtooth waves of Hegeler is desirable in the communication system of Mittel et al. because Mittel et al. suggest square signals in the operation of the transducer 100 (col. 5 lines 29-51) and Hegeler suggests filter 13 converts the square wave pulses to sawtooth-shaped waves in order to enhance the dynamic range of variation obtainable (col. 4 lines 1-15).

Referring to claim 2, Mittel et al. in view of Hegeler disclose the device of claim 1, Mittel et al. disclose wherein the variation of the frequency of the drive signal corresponds to a variation in the resonance frequency of the vibrator due to tolerances of specifications on which the resonance frequency is dependent (col. 3 lines 9-34).

Referring to claim 3, Mittel et al. in view of Hegeler disclose the device of claim 1, Mittel et al. disclose wherein the resonance frequency of the vibrator is a low frequency of p to hundreds of hertz, and the vibration of the vibrator has at the resonance frequency an amplitude generally perceivable by t he human body (col. 3 lines 9-34).

Referring to claim 10, Mittel et al. disclose a wireless communications system comprising a notifying device (100) (i.e. a mode tracking transducer driver) for notifying the user of incoming calls, the notifying device (100) (i.e. a mode tracking transducer driver) comprising a vibrator (102) (i.e. electromagnetic transducer to generate a tactile alert) to be resonated by a drive signal fed thereto, and a signal preparing circuit (106) (i.e. a transducer driver) for feeding the drive signal to the vibrator (102) (i.e. electromagnetic transducer to generate a tactile alert) at the time of a notifying operation, wherein frequency which of the drive signal varies in range including a resonance frequency of the vibrator (102) (i.e. electromagnetic transducer to generate a tactile alert) (col. 3 lines 9-34; see Figure 1).

However, Mittel et al. did not explicitly disclose the frequency of the vibrator in the form of a sawtooth waves, the sawtooth waves comprising a portion inclined with respect to a time base and portion perpendicular to the time base.

In the same field of endeavor of alerting system, Hegeler discloses the frequency of the vibrator (i.e. mobile receiver) in the form of sawtooth waves (col. 2 line 46 to col. 3 line 11), and it is obvious that the sawtooth waves comprising a portion included with

respect to a time based ad portion perpendicular to the time base (i.e. also see prior art Mizuno (US# 4,674,069).

It would have been obvious to provide sawtooth waves for the same reason with respect to claim 1 above.

Referring to claim 11, Mittel et al. disclose a wireless communication system having incorporated therein a notifying device (100) (i.e. a mode tracking transducer driver) for performing different kinds of notifying operations including notification of incoming calls, the notifying device comprising a vibrator (102) (i.e. electromagnetic transducer to generate a tactile alert) to be resonated by a drive signal fed thereto, and a drive signal feed circuit (i.e. a circuit of notifying device 100 generates signal to the electromagnetic transducer 102) for feeding the drive signal to the vibrator (102) (i.e. electromagnetic transducer to generate a tactile alert), which the drive signal feed circuit comprises:

command signal preparing means (104) (i.e. voltage control oscillator) for preparing notification command signals (502) (i.e. a transducer drive signal) which are different for different contents of notification in conformity with the content, and drive signal preparing means (106) (i.e. a transducer driver) operative in response to the notification command signal to prepare a drive signal which has a frequency of the vibrator.

Howvever, Mittel et al. did not explicitly disclose the frequency of the vibrator in the form of sawtooth waves, the sawtooth waves compring a portion inclined with respect to . a time base and a portion perpendicular to the time base.

In the same field of endeavor of alerting system, Hegeler discloses the frequency of the vibrator (i.e. mobile receiver) in the form of sawtooth waves (col. 2 line 46 to col. 3 line 11), and it is obvious that the sawtooth waves comprising a portion included with respect to a time based ad portion perpendicular to the time base (i.e. also see prior art Mizuno (US# 4,674,069).

It would have been obvious to provide sawtooth waves for the same reason with respect to claim 1 above.

Referring to claim 12, Mittel et al. in view of Hegeler disclose the wireless communication system of claim 11, Mittel et al. disclose wherein the drive signal prepared by the drive signal preparing means (106) (i.e. a transducer driver) varies in frequency continuously in conformity with the notification command signal or intermittently at a specified period in conformity with the notification command signal (col. 2 lines 38-47 and col. 3 line 9 to col. 4 line 11).

Referring to claim 13, Mittel et al. in view of Hegeler disclose the wireless communication system of claim 11, Mittel et al. disclose wherein the drive signal prepared by the drive signal preparing means (106) (i.e. a transducer driver) varies in

frequency at a specified period in conformity with the notification command signal (col. 2 lines 38-47 and col. 3 line 9 to col. 4 line 11).

Referring to claim 14, Mittel et al. in view of Hegeler disclose the wireless communication system of claim 11, Mittel et al. disclose wherein the variation of frequency of the drive signal prepared by the drive signal preparing means (106) (i.e. a transducer driver) corresponds to a variation in the resonance frequency of the vibrator (102) (i.e. electromagnetic transducer to generate a tactile alert) due to tolerances for specifications which govern the resonance frequency (col. 2 lines 38-47 and col. 3 line 9 to col. 4 line 11).

Referring to claim 15, Mittel et al. in view of Hegeler disclose a notifying device in claim 1, claim 15 equivalent to that of claim 3 addressed above, incorporated herein. Therefore, claim 15 is rejected for same reasons given with respected to claim 3.

Referring to claim 16, Mittel et al. in view of Hegeler disclose the wireless communication system of claim 11, Mittel et al. disclose wherein the command signal preparing means prepares an incoming call notifying command signal for notifying the user of an incoming call, a caller notifying command signal for distinguishing callers, and /or a mode notifying command signal for notifying the user of an operation mode of the system (col. 2 lines 26-47 and col. 3 lines 9-34).

Claims 4-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mittel et al. (US# 5,828,295) in view of Hegeler (US# 4,727,331) as applied to claim 1 above, and further in view of Kagan (US# 3,623,064).

Referring to claims 4-6, Mittel et al. disclose a notifying device of claim 1. However, Mittel et al. in view of Hegeler did not explicitly disclose wherein the drive signal has an alternating waveform of rectangular waves or sine waves having a frequency periodically varying at 0.5 to 10 Hz, 1.37 to 2.98 Hz or at 2.18 Hz.

In the same field of endeavor of electric vibrator, Kagan teaches wherein the drive signal has an alternating waveform of rectangular waves or sine waves having a frequency periodically varying at a frequency in a subaudible range of 5 Hz (col. 1 lines 21-30; see Figure 3) in order to activate the vibrator means.

One ordinary skill in the art understands that waveform of Kagan is desirable in the communication system of Mittel et al. in view of Hegeler, both Mittel et al. and Kagan's alerting devices, particularly to paging receivers. Therefore, it would have been obvious person as a matter of design expedient through routine experimentation to a person of ordinary skill in the art at the time of the invention was made to include wherein the drive signal has an alternating waveform of rectangular waves or sine waves having a frequency periodically varying at 0.5 to 10 Hz, 1.37 to 2.98 Hz or at 2.18 Hz of system disclosed by Kagan into system of Mittel et al. with the motivation for doing so would allow the range of frequency of the drive signal varied within range that is suitable and work best for their system in achieving optimal results.

Claims 9 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mittel et al. (US# 5,828,295) in view of Hegeler (US# 4,727,331) as applied to claims 1 and 11 above, and further in view of Saiki et al. (US# 6,208,237).

Referring to claim 9, Mittel et al. in view of Hegeler disclose a notifying device of claim 1. However, Mittel et al. in view of Hegeler did not explicitly disclose wherein the vibrator comprises a casing, a diaphragm having a fixed end on an inner peripheral wall of the casing, a magnet attached to a free end of the diaphragm, and a coil disposed as opposed to the magnet, and the drive signal is fed to the coil.

In the same field of endeavor of electro-mechanical and acoustic transducer, Saiki et al. teach wherein the vibrator comprises a casing, a diaphragm having a fixed end on an inner peripheral wall of the casing, a magnet attached to a free end of the diaphragm, and a coil disposed as opposed to the magnet, and the drive signal is fed to the coil (col. 1 line 60 to col. 2 line 15 and col. 6 lines 41-64) in order to have a strong vibration and sound.

One ordinary skill in the art understands that vibrator enclosure of Saiki et al. is desirable in the communication system of Mittel et al. in view of Hegeler, both Mittel et al. and Saiki et al. alerting devices, particularly to paging receivers. Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention was made to include wherein the vibrator comprises a casing, a diaphragm having a fixed end on an inner peripheral wall of the casing, a magnet attached to a free end of the

diaphragm, and a coil disposed as opposed to the magnet, and the drive signal is fed to the coil of system disclosed by Saiki et al. into system of Mittel et al. with the motivation for doing so would allow a notifying device consisted of a vibrator.

Referring to claim 17, Mittel et al. in view of Hegeler disclose a notifying device in claim 1, claim 17 equivalent to that of claim 9 addressed above, incorporated herein. Therefore, claim 17 is rejected for same reasons given with respected to claim 9.

(10) Response to Argument

A. On page 10, 2nd paragraph to page 11, 2nd paragraph, Appellant's argument that "Mittel et al. in view of Hegeler fail to teach a frequency of the drive signal varies within a range including a resonance frequency of the vibrator in the form of sawtooth waves, the sawtooth waves comprising a portion included with respect to the time base and a portion perpendicular to the time base", is not persuasive

Mittel et al. teach a tactile alerting device, the optimum frequency of operation is varied from 90 Hertz to 100 Hertz (col. 3 lines 15-25) within a variable frequency output from 40-120Hz.

Mittel et al. is silent on identifying a sawtooth wave form. However, Mittel et al. does teach the non-linear electromagnetic transducer 102 normally operates in domain I, "starting at a lower frequency 202 which is generated by the VCO 104 when initially enabled by the control input 116. The VCO 104 output is then swept, or ramped, up in frequency to an upper frequency 204, the rate at which the VCO 104 output is ramped

up being a function of the phase error detected between the VCO output, the mode signal 122 developed across R1, and the low pass filter 114. The mode signal 122 is a measure of the phase of the transducer drive current relative to the drive voltage applied to the transducer 102" (col. 4 lines 40-50; see Figure 1). This is clearly implies forming a sawtooth wave by varying the frequency (i.e. note. swept or ramped up).

Hegeler teaches the alerting tone used in mobile devices, wherein the loudness of the tone generated by a sawtooth wave has a relation with respect to the base frequency and thus respect to the pulse duration, or length in order to enhance the dynamic range (col. 2 lines 46 to col. 3 line 11). Hegeler clearly suggests the desire to use a sawtooth wave in an alerting device environment in order to provide a distinct tone to attract the attention of others (col. 1 lines 25-36).

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Scott Au

February 3, 2006

Conferees:

Michael Horabik

Brian Zimmerman

Armstrong, Kratz, Quintos,
Hanson & Brooks, LLP
Suite 1000
1725 K Street, N.W.
Washington, D.C. 20006

JEFFERY HOFSASS
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600

BRIAN ZIMMERMAN
PRIMARY EXAMINER

MICHAEL HORABIK
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600